

lowed soon after by another group of twenty-five, flew by and alighted in the field. The sky was overcast; the temperature about zero degrees F. There had been a light snow the night before, with slight continuing flurries throughout most of that day, about three inches of fresh snow having fallen. In the days preceding this new snow there had been some strong winds that caused considerable drifting and crusting of the old snow, conditions unusual for the region. On this day no weeds were visible above the snow in the field, and hence I was puzzled to know how the birds could obtain their food. As I skied out toward them, I saw that they were, in fact, feeding under the snow!

In many places the snow had drifted out from under the bent-over tops of the weeds, creating tunnels and openings below the surface, which allowed the birds access to seeds that had fallen on the ground previous to the snows. In some instances, also, where the taller plants had formed a sufficient canopy to support the snow-cover, seeds still adhering to the shorter plants were available for foraging in the air-spaces thus created under the snow. At several places the entrances to these sub-nival chambers appeared to have been dug out by the birds themselves, as there were many scratch marks in the snow, although this appearance might have been produced by the frequent exit and entrance of the redpolls into and out of these holes.

Several redpolls were seen to fly out of these burrows as I approached; several were seen actually picking up seeds under the snow before they were flushed out; and two birds refused to leave their shelters until I had stopped by their burrows not more than two feet from them. These observations suggest a possible adaptation to the problem of winter food-scarcity.

On frequent trips to this field during the remainder of the winter no similar activity was observed, and in fact redpolls were not again recorded for the area until March 29, when a flock of fifteen was seen in some alders bordering the field.

Other personal observations indicate that throughout the year in interior Alaska, the redpolls feed primarily upon the seeds of alders (*Alnus*) and birches (*Betula*) in keeping with their arboreal predispositions, but they also feed to a very considerable extent—especially in areas of human occupation—upon the seeds of lamb's quarters, *Chenopodium album*, and to a lesser extent upon some other cruciferous and composite weed seeds. The seeds of these food plants are eaten green (and in the flowering stage) in the spring and summer and in the dried state in the autumn and throughout the winter.

When the winter snows are at their maximum depth, however, most of the *Chenopodium* weeds are completely covered. In addition, the fruit bearing branches of the alders and birches are often heavily laden with snow. Then one must suppose these birds are hard put to find enough to eat. The importance of the snow-cover as a factor limiting the availability of food to birds during the northern winter in Arctic Lapland has been discussed recently by D. W. Snow (*Ibis*, 94, 1952:133-143), and among the adaptations to the arctic winter listed by him is the "ability to find food under the snow" (*op. cit.*, p. 140). My observation suggests that the Common Redpoll, at least under some circumstances, is so adapted in interior Alaska—or perhaps more correctly put, it has a sufficiently adventuresome disposition to utilize sub-nival situations, despite the fact that it is primarily an arboreal species. Such ecological and behavioral plasticity would seem to be of definite survival value in the far northern winter environment.—TOM J. CADE, *Alaska Cooperative Wildlife Research Unit, College, Alaska, May 15, 1952.*

Bird Notes from Western Montana.—The following records appear to add significant information to that previously published on the birds of western Montana. Items reported are supplementary to Saunders' "A Distributional List of the Birds of Montana" (*Pac. Coast Avif.* No. 14, 1921) and to subsequent distribution notes appearing in the *Auk*, *Condor* and *Murrelet*.

Aechmophorus occidentalis. Western Grebe. This grebe previously has been reported nesting in Lincoln County and in Glacier Park. It is a common breeder farther south at Ninepipe Migratory Bird Refuge in Lake County, approximately 50 miles north of Missoula. On August 5, 1940, I saw an adult with nine rather large young and on June 11, 1941, two adults were noted, each with a downy chick on its back.

Phalacrocorax auritus. Double-crested Cormorant. Saunders lists this as "a rare migrant" whereas Weydemeyer and Marsh (*Condor*, 38, 1936:185-198) found this species nesting at Lake Bowdoin in Phillips County in 1932 and 1935. For a number of years a small breeding colony has occurred regularly near Hilger Landing on the upper Missouri River in Lewis and Clark County about 10 miles

east of Helena. I saw eight or ten of the birds on June 1, 1947, five of which were on their nests located in the upper crotches of a group of partially submerged cottonwood snags.

Aix sponsa. Wood Duck. Saunders lists but six records for the state, of which only two were from west of the continental divide. While never present in large numbers, I have found this species to be a regular summer resident near Missoula, Missoula County, and at Stevensville, Hamilton and Darby in Ravalli County. I have noted it every summer from 1942 to the present date and have seen downy young accompanying a parent on several occasions within two miles of the center of Missoula.

Aythya americana. Redhead Duck. Weydemeyer (Auk, 50, 1933:210) found this duck nesting near Fortine in Lincoln County. The species is one of the common breeding ducks at Ninepipe Reservoir, within and adjacent to the migratory bird refuge in Lake County.

Aythya collaris. Ring-necked Duck. Saunders gives no records for west of the continental divide. I saw a drake at Frenchtown, Missoula County, on September 21, 1941, one drake and two ducks eleven miles west of Missoula on May 8, 1948, and several individuals of both sexes between Perma and Paradise, Sanders County, on December 20, 1948.

Cathartes aura. Turkey Vulture. Mewaldt mentions (Condor, 52, 1950:238) three occurrences in Missoula County which would indicate that the bird is uncommon here. This conforms with my own experience in the first seven or eight years of my observations in this vicinity. In the summer of 1947 I discovered a roost in an inaccessible portion of a cottonwood swamp about two and a half miles west of Missoula. It has been occupied every summer since that date and it is not at all uncommon to see from twenty to thirty vultures there at one time, in the late summer and early fall. The earliest arrivals usually appear in the first week in April (earliest, March 27; latest, April 24) and their numbers are augmented until they reach their maximum abundance by early September. The last individual is usually gone before the first of October.

Falco columbarius. Pigeon Hawk. Saunders regarded this species as a rare summer resident in Montana and listed no winter records. Weydemeyer (Condor, 35, 1933:121) reports one seen on January 15, 1931, in Lincoln County. An individual appeared in Missoula on October 25, 1938, and was seen frequently until December 6, and since 1942, one or more of this species has spent all or part of the winter here regularly. Dates of occurrence are as follows: October 21, 1942, to January 24, 1943; December 6, 1943, to March 5, 1944; October 1, 1944, to February 11, 1945; October 2, 1945, to March 3, 1946; October 18 to December 31, 1946; September 13, 1947, to April 10, 1948; September 19, 1948, to February 15, 1949; September 18, 1949, to February 19, 1950 (at least 2 present); September 20, 1950, to March 3, 1951 (at least 3 present); and November 10, 1951, to date, December 3. Although these hawks may arrive quite early in the fall, the extent to which they linger in the vicinity seems to be closely coordinated with the appearance of Bohemian Waxwings in large flocks.

Catoptrophorus semipalmatus. Willet. Saunders gives no records from west of the continental divide. On September 2, 1951, I saw two of these birds on a gravel bar along the Clark Fork River about two miles west of Missoula.

Limnodromus scolopaceus. Dowitcher. Saunders lists no records from west of the continental divide. Weydemeyer (Condor, 33, 1931:128) has noted the species in Lincoln County in fall, but there appear to be no spring records. I saw three individuals at close range on May 8, 1948, about eleven miles west of Missoula.

Recurvirostra americana. American Avocet. Saunders records this species as a summer resident in suitable localities, mainly along the northern border of the state and as a migrant elsewhere. I have numerous records of this conspicuous species from many parts of western Montana. In 1947 and 1948 flocks of 50 or more were seen within a few miles of Missoula in late April and early May. Others have been noted in Granite, Deerlodge, and Ravalli counties, and the species appears to be a common summer resident at the Federal Migratory Bird Refuge at Ninepipe Reservoir in Lake County.

Archilochus alexandri. Black-chinned Hummingbird. Saunders considered this bird a rare summer resident of extreme northwestern Montana and listed no breeding records. It is not uncommon in the vicinity of Missoula. Nests with fledglings were noted within the city limits on July 19, 1942, and on June 27, 1947.

Asyndesmus lewis. Lewis Woodpecker. Apparently there are no previous winter records. During the winter of 1947 to 1948 a pair remained at Missoula until Christmas day and a single individual was seen again on January 11.

Cyanocephalus cyanocephalus. Piñon Jay. The only records from west of the continental divide are those reported by Weydemeyer (Condor, 29, 1927:159) from Lincoln County, a single individual seen on November 14, 1926, at Missoula by Caroline Wells (Condor, 30, 1928:322), and two specimens collected by Truman Smith from a flock of 100 or more on January 27, 1945, in Gird's Creek, east of Hamilton, Ravalli County (Condor, 47, 1945:129). The last record, reported by Philip L. Wright, may indicate a general influx of this species into western Montana during that particular winter in view of the following: On January 9, 1945, a scattered flock of between 30 and 40 individuals was watched for some time in Greenough Park, Missoula. The birds were tame and easy to approach. On May 3 of the same year, Mr. K. D. Swan of Missoula saw a similar sized flock at Bandmann Flats, a few miles east of Missoula.

Regulus calendula. Ruby-crowned Kinglet. There is no previous winter record. These kinglets normally arrive at Missoula in the first half of April and leave in mid-October. One was seen on December 11, 1938, after more than a month of severe winter weather.

Bombycilla cedrorum. Cedar Waxwing. There are no previous winter records for the state. This species has been a regular winter resident in Missoula since 1943, with few exceptions. In 1950-51 larger flocks than usual, up to 75, remained until mid-December; thereafter only a few were noted until February 12 after which they all disappeared. In this locality the Cedar Waxwings appear in their greatest abundance immediately following the breeding season and it is not unusual to note flocks of one to two hundred during September and October. When the Bohemian Waxwings arrive (usually between October 20 and November 15), the first few of the advance guard of that species commonly attach themselves to flocks of resident Cedar Waxwings that are prevalent at that time. If one watches these mixed flocks continuously, he will note a gradual reversal in the ratio between the two species. By the end of November the Bohemians may be present in flocks aggregating a thousand or more individuals while it becomes a matter of extreme patience and perseverance to note with certainty that a few Cedars may be among them. Later in the winter the two species seem more inclined to separate, the Cedars in small detachments by themselves or associated with Robins and Evening Grosbeaks.

Euphagus carolinus. Rusty Blackbird. Recorded by Saunders as a rare migrant in eastern Montana, with no records except from Custer County. Weydemeyer (Condor, 38, 1936:87) records it in fall from Lincoln County. I saw a single individual in the characteristic rusty fall plumage on September 17, 1950, in the Orchard Homes residential section of Missoula.

Carpodacus cassinii. There is no previous winter record for the state. The species normally arrives at Missoula during the first half of April (earliest, March 30) and departs in September (latest, October 13). I saw a male on December 20, 1946 (temperature 1 below zero), three females on December 8, 1948, and a flock of about 30 on February 20, 1949.

Zonotrichia querula. Harris Sparrow. The only record from west of the continental divide is reported by Weydemeyer from Lincoln County (Condor, 39, 1937:129). I saw one in Greenough Park, Missoula, on October 13 and 14, 1950. It appeared to be immature.

Zonotrichia albicollis. White-throated Sparrow. Weydemeyer (Condor, 29, 1927:159) lists a number of sight records for Lincoln County; otherwise there appears to be none from west of the continental divide. I have seen typical adults in the vicinity of Missoula on the following dates: October 11, 1938 (2), October 14, 1944, (1) and October 18, 1946 (1).

Melospiza georgiana. Swamp Sparrow. Saunders lists two records from west of the continental divide, one from Silverbow County, the other (recorded as doubtful) from Flathead Lake. I saw two at the edge of a slough along the Clark Fork River two miles west of Missoula on October 17, 1948, and again on November 7 of the same year.—R. L. HAND, *United States Forest Service, Missoula, Montana, January 1, 1952.*